



Green Gown Awards
Australasia

2030 Climate Action

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2020 Case Study



UNSW
SYDNEY

Net Zero UNSW

UNSW is a major investor, consumer and land holder, with its campuses forming part of the daily lives of over 64,000 students and 7,200 staff. The University has a long history of ground-breaking research in fields including climate science, sustainable materials and solar energy.

UNSW's 2025 Strategy was published in 2015, with a vision: *'To improve lives globally, through innovative research, transformative education and commitment to a just society'*. It was updated in 2020 to include a new theme: Sustainable Development, under the strategic priority Social Impact.

In 2018, Professor Ian Jacobs, UNSW's President and Vice-Chancellor, announced the intention for UNSW to switch to 100% renewable electricity and achieve net zero energy-related emissions from 2020. Through a 15-year Power Purchase Agreement (PPA), UNSW will be supplied 100% of its electricity from the Sunraysia Solar Farm. This solar farm, covering 1000 hectares, is one of the largest in the world. At peak output, the solar farm will generate over 255 megawatts of direct current, enough to power 50,000 homes.

Construction was completed in 2019, and the UNSW connection will be completed in 2020. In combination with energy efficiency measures, onsite solar projects and purchasing carbon credits to offset natural gas and residual emissions, UNSW will achieve net

zero Scope 1 & 2 emissions in 2020. In 2019 alone, UNSW installed three new solar photovoltaic (PV) systems at Kensington campus, bringing the total to 13 and increasing total installed PV capacity on campus by 24% to 1.16 megawatt potential (MWp) in capacity.

Furthermore, UNSW's own ingenuity underpins this new source of renewable energy – the 25% of the Sunraysia project that is dedicated to supplying the University with power contains approximately 140,000 panels which use PERC silicon solar technology; pioneered at UNSW by Professor Martin Green and the late Professor Stuart Wenham.

UNSW's **Environmental Sustainability Plan 2019-21** established a bold vision to be a catalyst for an environmentally sustainable future through excellence in research, teaching and campus operations. Under the focus area Climate Action, UNSW committed to measure and reduce its total Scope 1,2 & 3 emissions in line with a 1.5°C limit, beyond which the IPCC states that climate impacts become markedly more severe.

In 2020, UNSW undertook a comprehensive GHG inventory aligned to the best practice standard for GHG accounting, the **Greenhouse Gas Protocol** and **Corporate Value Chain**

(Scope 3) Standard. The assessment included all entities over which UNSW has operational control and emissions across its entire value chain, using UNSW spend data, physical data and input-output analysis to build a comprehensive inventory model. Emissions were categorised as:

- Scope 1 (direct emissions from fuel use and refrigerant leakage)
- Scope 2 (indirect emissions from consumption of purchased electricity); and
- Scope 3 (upstream and downstream value chain emissions including travel, investments, goods and services)

The result, a summary of which is published in **Environmental Sustainability Report 2019** (p11), is the most comprehensive GHG inventory of any university in Australia, possibly globally, and found that 'Scope 3' sources were 83% of UNSW's baseline footprint, led by purchased goods and services, investments, capital goods and travel. Emissions from commuting, fleet, waste, tenants and other sources were also captured. The assessment highlights that Scope 3 emissions need more focus from universities and other organisations targeting net zero emissions.

Informed by this study, in 2020 UNSW Council approved new targets, developed using the methodology developed by the Science Based Targets initiative (SBTi). In addition to net zero Scope 1 & 2 emissions from 2020, UNSW will:

- Reduce Scope 1, 2 & 3 emissions on a 1.5°C pathway: 30% by 2025, 50% by 2030, net zero by 2050; and
- Offset annual emissions from staff travel from 2022 onwards

In 2020, UNSW also announced that it would **divest of all direct and indirect fossil fuel assets by 2025** as part of its net zero emissions goal.

The inventory provides the basis for a strategy (currently under development) to achieve UNSW's net zero target.

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Environmental & Social Benefits

Environmental Benefits

With the completion of the Sunraysia Solar Farm and UNSW's connection forecast to be completed by September 2020, and augmented by new solar PV systems installed on site, solar energy will supply the University with 100% of its electricity demand, saving approximately 77,500 tonnes of carbon dioxide equivalent (tCO₂e) emissions per annum based on 2019 emissions. Additionally, UNSW will purchase carbon credits to offset residual emissions from natural gas usage and other Scope 1 emissions (a further 8,600 tCO₂e per annum).

Reducing Scope 3 emissions at the rate needed to achieve UNSW's science-based GHG target will save a further 115,000 tCO₂e per year by 2025 (target: 30% reduction) and 197,000 tCO₂e per year by 2030 (target: 50% reduction). Crucially, reducing Scope 3 emissions across the value chain requires engaging with suppliers, investment managers and other partners, so that UNSW is able to influence emission reductions across the wider economy, acting as a catalyst for decarbonisation.

Societal Benefits

The PPA project has broken new ground in Australia and set in place a mechanism for others to replicate, tailor and follow. Solar energy procurement arrangements like UNSW's will be critical in driving real change in the way universities and other large energy users across society procure renewable energy. This project is also generating jobs and investment in regional NSW and making our state more resilient to a changing climate.

The results of UNSW's GHG inventory provide a detailed case study for universities and other organisation wishing to understand, measure and their key GHG emission sources, and develop a science-based pathway to net zero. To offset remaining Scope 1 and travel emissions, UNSW is in the process of creating an emissions offsetting program and will purchase credits from projects that create social co-benefits.



Leadership & Engagement

The achievements detailed above are a powerful reflection of UNSW's commitment to taking transformative action on climate change and acknowledges the University's research leadership and contribution to the field of photovoltaic solar cells and systems over the last 30 years. This is not only a unique story of innovative climate change leadership but also provides a model that can transform renewable energy procurement in Australia. Our hope is that our efforts will pave the way for others to follow.

Wider Societal Impact

A particular message that has promulgated during the COVID-19 pandemic is one that aptly applies to the longer term – yet equally vital – issue of climate change; “We are all in this together”.

By demonstrating leadership – on campus and within our wider community – and by showing that real action is possible (not just wishful thinking), UNSW hopes to act as a catalyst for a broader societal-level commitment to addressing the greatest issue of our time. In doing so, UNSW is contributing to the transformation of the Australian and global economy, leading to greater climate resilience, and the emergence of new green jobs and industries.

Top 3 Learnings

Achieving buy-in from senior leadership and taking the time to explain the intricacies of the complex procurement process was vital for success of the PPA

Scope 3 emission sources are major contributors to the total footprint of a university and need to be fully assessed and included in 'net zero' targets

A renewable PPA can drive transformation of the energy system, while targeting Scope 3 emissions can drive change in the wider economy